

WHAT IS CLAIMED IS:

1. A color printer for printing to a photosensitive medium comprising:
 - a first light source for generating a first color beam;
 - a first modulator for modulating said first color beam;
 - a second light source for generating a second a color beam;
 - a second modulator for modulating said second color beam;
 - a third light source for generating a third color beam;
 - a third modulator for modulating said third color beam;
 - at least a fourth light source for generating a fourth color beam;
 - a fourth modulator for modulating at least said fourth color beam; and
 - an optical system for combining and imaging said modulated beams onto said photosensitive medium.
2. A color printer as in claim 1 wherein said photosensitive medium is a motion picture film having at least four sensitive layers.
3. A color printer as in claim 1 wherein said photosensitive medium is a motion picture negative film having at least four sensitive layers.
4. A color printer as in claim 1 wherein said photosensitive medium is a motion picture print film having at least four sensitive layers.
5. A color printer as in claim 1 wherein said photosensitive medium is a motion picture reversal film having at least four sensitive layers.
6. A color printer as in claim 1 wherein said photosensitive medium is a photographic film having at least four sensitive layers.

7. A color printer as in claim 1 wherein said photosensitive medium is a photographic negative film having at least four sensitive layers.

8. A color printer as in claim 1 wherein said photosensitive photographic print film having at least four sensitive layers.

9. A color printer as in claim 1 wherein said photosensitive photographic reversal film having at least four sensitive layers.

10. A color printer as in claim 1 wherein said photosensitive medium is a photographic paper having at least four sensitive layers.

11. A color printer as in claim 1 wherein said modulators are reflective LCDs.

12. A color printer as in claim 1 wherein said modulators are transmissive LCDs.

13. A color printer as in claim 1 wherein said modulators are digital micromirror devices.

14. A color printer as in claim 1 wherein said modulators are gated light valves.

15. A color printer as in claim 1 wherein said modulators are acousto-optic.

16. A color printer as in claim 1 wherein said modulators are comprised of electro-optic modulators and polygon scanners.

17. A color printer as in claim 1 wherein said light sources are selected from a group comprised of infra-red, red, green, yellow-green, blue-green, blue, and ultra-violet lasers.

18. A color printer as in claim 1 wherein said light sources are selected from a group comprised of infra-red LED array, red LED array, green LED array, blue-green LED array, yellow-green LED array, a blue LED array, and an ultra-violet LED array.

19. A color printer as in claim 1 wherein each of said light sources are comprised of infra-red LED, red LED, green LED, blue-green LED, yellow-green LED, blue LED, and ultra-violet LED.

20. A color printer as in claim 1 wherein said light sources are selected from a group comprised of laser, LED array, filtered xenon, and filtered tungsten.

21. A color printer as in claim 1 wherein said modulators are comprised of electro-optic modulators and a raster scan device.

22. A color printer as in claim 1 wherein said modulators are comprised of electro-optic modulators and a hologon.

23. A color printer as in claim 1 wherein said modulators are comprised of electro-optic modulators and a galvo.

24. A method of printing to a photosensitive medium comprising:

- generating a first color beam;
- modulating said first color beam;
- generating a second color beam;
- modulating said second color beam;

generating a third color beam;
modulating said third color beam;
generating at least a fourth color beam;
modulating at least said fourth color beam; and
an optical system for combining and imaging said
modulated beams onto said photosensitive medium.

25. A color printer as in claim 24 wherein said photosensitive medium is a motion picture film having at least four sensitive layers.

26. A color printer as in claim 24 wherein said photosensitive medium is a motion picture negative film having at least four sensitive layers.

27. A color printer as in claim 24 wherein said photosensitive medium is a motion picture print film having at least four sensitive layers.

28. A color printer as in claim 24 wherein said photosensitive medium is a motion picture reversal film having at least four sensitive layers.

29. A color printer as in claim 24 wherein said photosensitive medium is a photographic film having at least four sensitive layers.

30. A color printer as in claim 24 wherein said photosensitive medium is a photographic negative film having at least four sensitive layers.

31. A color printer as in claim 24 wherein said photosensitive photographic print film having at least four sensitive layers.

32. A color printer as in claim 24 wherein said photosensitive photographic reversal film having at least four sensitive layers.

33. A color printer as in claim 24 wherein said photosensitive medium is a photographic paper having at least four sensitive layers.

34. A color printer as in claim 24 wherein said modulators are reflective LCDs.

35. A color printer as in claim 24 wherein said modulators are transmissive LCDs.

36. A color printer as in claim 24 wherein said modulators are digital micromirror devices.

37. A color printer as in claim 24 wherein said modulators are gated light valves.

38. A color printer as in claim 24 wherein said modulators are acousto-optic.

39. A color printer as in claim 24 wherein said modulators are electro-optic modulators combined with polygon scanners.

40. A color printer as in claim 24 wherein said light sources are selected from a group comprised of infra-red, red, green, yellow-green, blue-green, blue, and ultra-violet lasers.

41. A color printer as in claim 24 wherein said light sources are selected from a group comprised of infra-red LED array, red LED array, green LED array, blue-green LED array, yellow-green LED array, blue LED array, and an ultra-violet LED array.

42. A color printer as in claim 24 wherein each of said light sources are comprised of infra-red LED, red LED, green LED, blue-green LED, yellow-green LED, blue LED, and an ultra-violet LED.

43. A color printer as in claim 24 wherein said light sources are selected from a group comprised of laser, LED array, filtered xenon, and filtered tungsten.

44. A color printer for printing to a photosensitive medium comprising:

a first light source for generating a first color beam;
a first modulator means for modulating said first color beam;
a second light source for generating a second a color beam;
a second modulator means for modulating said second color beam;
a third light source for generating a third color beam;
a third modulator means for modulating said third color beam;
at least a fourth light source for generating a fourth color beam;
a fourth modulator means for modulating at least said fourth color beam; and
an optical system for combining and imaging said modulated beams onto said photosensitive medium.

45. A color printer as in claim 44 wherein said photosensitive medium is a motion picture film having at least four sensitive layers.

46. A color printer as in claim 44 wherein said photosensitive medium is a motion picture negative film having at least four sensitive layers.

47. A color printer as in claim 44 wherein said photosensitive medium is a motion picture print film having at least four sensitive layers.

48. A color printer as in claim 44 wherein said photosensitive medium is a motion picture reversal film having at least four sensitive layers.

49. A color printer as in claim 44 wherein said photosensitive medium is a photographic film having at least four sensitive layers.

50. A color printer as in claim 44 wherein said photosensitive medium is a photographic negative film having at least four sensitive layers.

51. A color printer as in claim 44 wherein said photosensitive photographic print film having at least four sensitive layers.

52. A color printer as in claim 44 wherein said photosensitive photographic reversal film having at least four sensitive layers.

53. A color printer as in claim 44 wherein said photosensitive medium is a photographic paper having at least four sensitive layers.

54. A color printer as in claim 44 wherein said modulators are reflective LCDs.

55. A color printer as in claim 44 wherein said modulators are transmissive LCDs.

56. A color printer as in claim 44 wherein said modulators are digital micromirror devices.

57. A color printer as in claim 44 wherein said modulators are gated light valves.

58. A color printer as in claim 44 wherein said modulators are acousto-optic.

59. A color printer as in claim 44 wherein said modulators are electro-optic modulators combined with polygon scanners.

60. A color printer as in claim 44 wherein said light sources are selected from a group comprised of infra-red, red, green, yellow-green, blue-green, blue, and ultra-violet lasers.

61. A color printer as in claim 44 wherein said light sources are selected from a group comprised of infra-red LED array, red LED array, green LED array, blue-green LED array, yellow-green LED array, blue LED array, and an ultra-violet LED array.

62. A color printer as in claim 44 wherein each of said light sources are comprised of infra-red LED, red LED, green LED, blue-green LED, yellow-green LED, blue LED, and an ultra-violet LED.

63. A color printer as in claim 44 wherein said light sources are selected from a group comprised of laser, LED array, filtered xenon, and filtered tungsten.

64. A color printer for printing to a photosensitive medium comprising:

- a first light source for generating a first color beam;
- a second light source for generating a second a color beam;
- a third light source for generating a third color beam;
- at least a fourth light source for generating a fourth color beam;

a modulator for modulating said first, second, third, and fourth color beams; and

an optical system for combining and imaging said modulated beams onto said photosensitive medium.

65. A color printer as in claim 64 wherein said photosensitive medium is a motion picture film having at least four sensitive layers.

66. A color printer as in claim 64 wherein said photosensitive medium is a motion picture negative film having at least four sensitive layers.

67. A color printer as in claim 64 wherein said photosensitive medium is a motion picture print film having at least four sensitive layers.

68. A color printer as in claim 64 wherein said photosensitive medium is a motion picture reversal film having at least four sensitive layers.

69. A color printer as in claim 64 wherein said photosensitive medium is a photographic film having at least four sensitive layers.

70. A color printer as in claim 64 wherein said photosensitive medium is a photographic negative film having at least four sensitive layers.

71. A color printer as in claim 64 wherein said photosensitive photographic print film having at least four sensitive layers.

72. A color printer as in claim 64 wherein said photosensitive photographic reversal film having at least four sensitive layers.

73. A color printer as in claim 64 wherein said photosensitive medium is a photographic paper having at least four sensitive layers.

74. A color printer as in claim 64 wherein said modulator is a reflective LCD.

75. A color printer as in claim 64 wherein said modulator is a transmissive LCD.

76. A color printer as in claim 64 wherein said modulator is a digital micromirror device.

77. A color printer as in claim 64 wherein said modulator is a gated light valve.

78. A color printer as in claim 64 wherein said modulator is an acousto-optic.

79. A color printer as in claim 64 wherein said modulator is an electro-optic modulator.

80. A color printer as in claim 64 wherein said light sources are selected from a group comprised of infra-red, red, green, yellow-green, blue-green, blue and ultra-violet lasers.

81. A color printer as in claim 64 wherein said light sources are selected from a group comprised of infra-red LED array, red LED array, green LED array, blue-green LED array, yellow-green LED array, a blue LED array, and an ultra-violet LED array.

82. A color printer as in claim 64 wherein each of said light sources are comprised of infra-red LED, red LED, green LED, blue-green LED, yellow-green LED, a blue, and an ultra-violet LED.

83. A color printer as in claim 64 wherein said light sources are selected from a group comprised of laser, LED array, filtered xenon, and filtered tungsten.

84. A color printer as in claim 64 wherein said optical system includes at least one raster scanning device selected from a group comprising:
a polygon, a hologon, or a galvanometer.

85. A method of printing to a photosensitive medium comprising:
generating a first color beam;
generating a second color beam;
generating a third color beam;
generating at least a fourth color beam;
modulating combining said first, second, third, and fourth color beams; and
an optical system for imaging said modulated beams onto said photosensitive medium.

86. A color printer for printing to a photosensitive medium comprising:
a light source for generating a first color beam, a second color beam, a third color beam, and a fourth color beam;
a modulator for modulating said color beams; and
an optical system for imaging said modulated beams onto said photosensitive medium.

87. A color printer as in claim 86 wherein said photosensitive medium is a motion picture film having at least four sensitive layers.

88. A color printer as in claim 86 wherein said photosensitive medium is a motion picture negative film having at least four sensitive layers.

89. A color printer as in claim 86 wherein said photosensitive medium is a motion picture print film having at least four sensitive layers.

90. A color printer as in claim 86 wherein said photosensitive medium is a motion picture reversal film having at least four sensitive layers.

91. A color printer as in claim 86 wherein said photosensitive medium is a photographic film having at least four sensitive layers.

92. A color printer as in claim 86 wherein said photosensitive medium is a photographic negative film having at least four sensitive layers.

93. A color printer as in claim 86 wherein said photosensitive photographic print film having at least four sensitive layers.

94. A color printer as in claim 86 wherein said photosensitive photographic reversal film having at least four sensitive layers.

95. A color printer as in claim 86 wherein said photosensitive medium is a photographic paper having at least four sensitive layers.

96. A color printer as in claim 86 wherein said modulator is a reflective LCD.

97. A color printer as in claim 86 wherein said modulator is a transmissive LCD.

98. A color printer as in claim 86 wherein said modulator is a digital micromirror device.

99. A color printer as in claim 86 wherein said modulator is a gated light valve.
100. A color printer as in claim 86 wherein said modulator is an acousto-optic.
101. A color printer as in claim 86 wherein said modulator is an electro-optic modulator.
102. A color printer as in claim 86 wherein said light sources are selected from a group comprised of infra-red, red, green, yellow-green, blue-green, blue, and ultra-violet lasers.
103. A color printer as in claim 86 wherein said light sources are selected from a group comprised of infra-red LED array, red LED array, green LED array, blue-green LED array, yellow-green LED array, a blue LED array, and an ultra-violet LED array.
104. A color printer as in claim 86 wherein each of said light sources are comprised of infra-red LED, red LED, green LED, blue-green LED, yellow-green LED, blue LED, and ultra-violet LED.
105. A color printer as in claim 86 wherein said light sources are selected from a group comprised of laser, LED array, filtered xenon, and filtered tungsten.
106. A color printer as in claim 86 wherein said optical system includes at least one raster scanning device selected from a group comprising:
a polygon, a hologon, or a galvanometer.
107. A method of printing to a photosensitive medium comprising:

generating a first color beam;
generating a second color beam;
generating a third color beam; and
generating at least a fourth color beam.

108. A color printer for printing to a photosensitive medium comprising:

a first light source for generating a blue-green color beam;
a second light source for generating a green color beam;
a dichroic mirror for combining said blue-green and said green color beam;
a third light source for generating a red color beam;
at least a fourth light source for generating a blue color beam;
a dichroic combiner for combining said blue-green, green, red, and blue color beams modulator means for modulating said blue-green, green, red, and blue color beams; and
an optical system for combining and imaging said modulated beam onto said photosensitive medium.

109. A printer for printing to a photosensitive medium comprising:

a first light source for generating an infra-red color beam;
a second light source for generating a green color beam;
a dichroic mirror for combining said infra-red and said green color beam;
a third light source for generating a red color beam;
at least a fourth light source for generating a blue color beam;
a dichroic combiner for combining said infra-red, green, red, and blue color beams modulator means for modulating said infra-red, green, red, and blue color beams; and

an optical system for combining and imaging said modulated beam onto said photosensitive medium.

110. A color printer for printing to a photosensitive medium comprising:

a first light source for generating a first color beam;
a first shutter for interrupting said first color beam;
a second light source for generating a second color beam;
a second shutter for interrupting said second color beam;
a third light source for generating a third color beam;
a third shutter for interrupting said third color beam;
a fourth light source for generating a fourth color beam;
a fourth shutter for interrupting said fourth color beam;
a modulator for modulating said first, second, third, and fourth color light beams sequentially; and
an optical system for imaging said modulated beams onto said photosensitive medium.